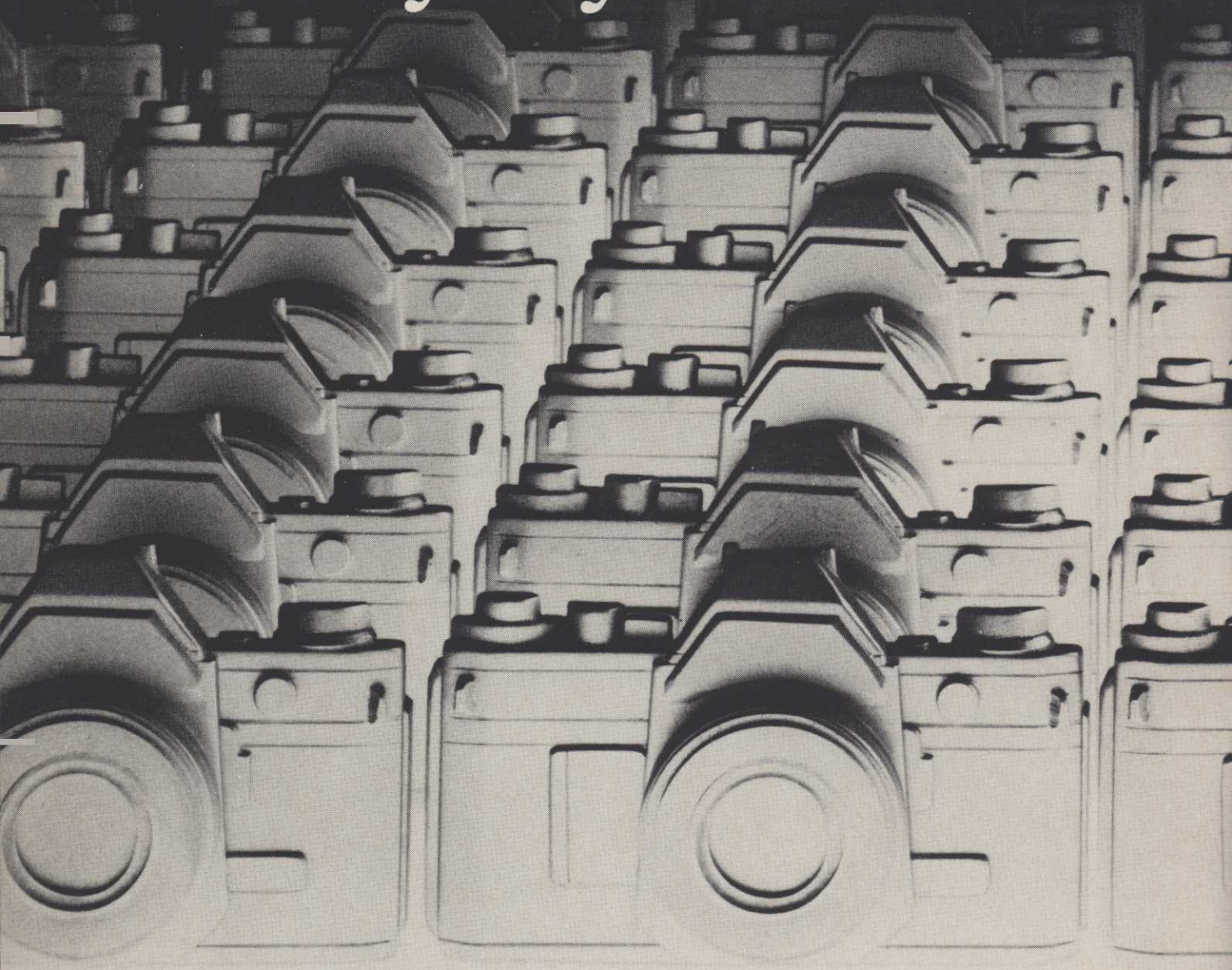
LENS

MAGAZINE March/April 1984

Instead of owning a cam
maybe you need a cam



In a world full of cookie-cutter SLRs, Nikon introduces the world's

Over the years millions of people have bought millions of SLRs designed for beginners.

But what happens when you don't want to take pictures like a beginner anymore?

Many stick with their mass-produced SLR and wonder why they can't get better results.

For the few, however, who are determined to improve as photographers, Nikon has created an engineering marvel called the FE2. An automatic SLR so different, there are no other cameras to compare it with.

For instance, take the matter of Selective Focusing. Which is the ability to vary apertures to express your impression of the subject. An absolute must for anyone who wants to improve as a photographer.

The FE2 gives you more options for Selective Focusing than any other 35mm SLR in the world.

To begin with, the FE2 is an aperture-priority automatic. So you have total control over depth of field when you shoot in automatic.

But, as we said, that's just the beginning.

The FE2 is the first 35mm automatic with a 1/4000 shutter speed. An innovation made possible by Nikon's development of an ultra-thin honeycomb titanium shutter. It means photographers like yourself will, for the first time, be able to use a full range of apertures in bright sunlight. And because the FE2 is faster than any other 35mm automatic, it gives you greater control over exposure than other cameras when using the

If you love photography, don't miss Nikon's "The Photographer's Eye" on SPN Cable TV. Check local listings. For further information write Dept. 50, Nikon Inc., 623 Stewart Ave., Garden City, N.Y. 11530. © Nikon Inc. 1983.

ra designed for millions
ra engineered for a few.

astest 35mm SLR automatic. The FE2.

est 1000 ASA color print film.

The FE2 is also the only 35mm omatic with a 1/250 flash synch eed. Which means you'll have the lity to select a wider range of lens ertures when taking flash pictures doors. An achievement that was ce considered impossible with a mm SLR.

In addition, the FE2 is one of the y cameras equipped with through-lens flash metering (TTL). Which es you unparalleled accuracy cause flash exposures are measured by the camera as they pass through the lens. And not by a sensor on the flash unit itself. TTL allows you to achieve virtually unlimited aperture settings when shooting flash indoors with a dedicated Nikon Speedlight.

Even when you're not taking photographs with the FE2 it's an astonishing camera. Its balance and 'feel' make other SLRs seem bulky and unresponsive. And its copper silumin aluminum body makes it one of the most rugged Nikons ever made.

So while other cameras are designed for millions, the FE2 is engineered to take the kind of pictures only a few strive for.

One-in-a-million.

Nikon

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LENS
MARCH/APRIL 1984 VOL. 9 NO. 4

Paul Aresu keeps an eye on the light, preferring those times of day when his subjects seem to be spotlighted. For more, see Gallery, page seventeen.

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In a flash, it proves it's the world's most sophisticated program SLR.

Fully programmed flash. Using the Minolta 280PX flash, all settings were made by camera's program automatically.

No lost background. Even the wall behind the musicians is illuminated by ambient light.

Natural color. Note the flesh tones and the warm wood hues of the string bass.

Foreground detail. No burnout, no harsh shadows.

Dual metering control. Ambient light was measured, and flash duration controlled, by separate computerized metering systems.

Exposure confirmation. LED indicator in viewfinder confirmed that light was sufficient for correct exposure.

Photo by Morton Beebe.

In the elite realm of program SLRs, only the Minolta X-700 provides fully programmed flash, where you literally set and calculate nothing!

Just slide any of three available Minolta PX flash units into the X-700's hot shoe. Flash exposure is calculated via two separate silicon photo cells within the camera body. One reads ambient light through the lens, and the other controls flash off the film plane at the instant of exposure. Because both cells are controlled by the program (with no separate flash sensor), you get accuracy that can't be achieved by any other program flash system.

The result is full-depth flash pictures so natural they don't *look* like flash pictures.

But that's just the beginning. In the aperture-priority flash mode, you still get the accuracy of through-the-lens and off-the-film-plane metering. With a working range of up to 169 feet at f/1.4 using ASA 400 film! And the X-700's sophisticated flash metering greatly simplifies macro photography.

With Power Grip 2 and Motor Drive 1, you can even get rapid-sequence flash shots. Or, add the unique Multi-Function Back for totally unmanned flash photography.

The X-700 flash system. It's easier to use, more efficient and more sophisticated than any other system in the SLR field. No wonder it was voted "Camera of the Year" on two continents.

Minolta's 2-year camera/5-year lens limited U.S.A. warranty registration cards packaged with product. For more information on the X-700, see your photo dealer or write Minolta Corp., Dept. F7-1, 101 Williams Drive, Ramsey, N.J. 07446. In Canada: Minolta Canada, Inc., Mississauga, Ontario, Canada L4W 1A4.

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X700

ONLY FROM THE MIND OF MINOLTA

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ROVING EYE

On High

The fine art of aerial photography can be practiced in one of the world's more awesome areas — the American Southwest. Flying up to five passengers over the Four Corners region, Bruce Adams enables photographers to capture the chiaroscuro topography from an average altitude of 500 feet.

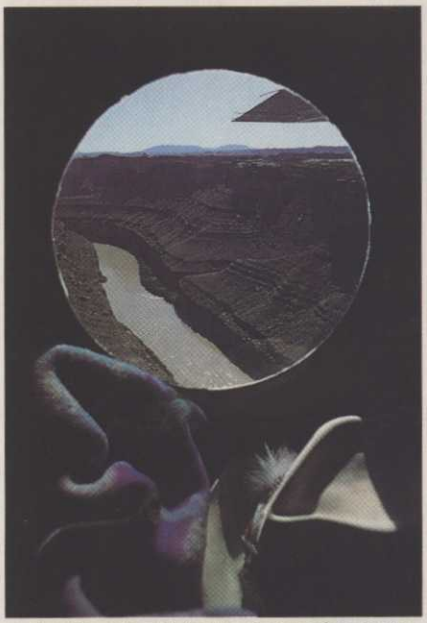
Bruce and his wife Anna operate Southwest Safaris out of Santa Fe, New Mexico, April through October. The natural history aerial adventures range from one to five days, with overnight accommodations in lodges or at scenic campsites.

My husband Landt and I took an early October trip with Southwest Safaris, doing assignments for *Esquire* and *Sunset* magazines. Arriving at the Santa Fe airport at the crack, we saw the dawn light hitting the surreal Cerrillos Hills. Our small duffles of extra clothing and bare minimum necessities were promptly stashed in a Toyota 4-wheel drive Landcruiser, which Anna would drive to our first campsite. Next, Bruce introduced us to the two other passengers, and unfurled a map of the vast area we were to cover on our five-day trip.

"For those of you who will be shooting pictures from the plane, be sure to use a fast shutter speed and set the focus on infinity," Bruce advised. "Anticipate upcoming photographs, raise the camera to your eye, shoot quickly and rest the camera back in your lap."

"And for heaven sakes," Bruce admonished, "do not stare through the viewfinder for long periods of time, with the earth moving and undulating below." This bit of advice didn't need further elaboration.

During the first flight, I photographed at a shutter speed of 250th of a second. It wasn't long before I realized that my 28-45mm zoom lens was too wide. One of the biggest mistakes amateur aerial photographers make is the assumption that a wide angle lens is required. Not at all, especially when shooting from an altitude of 300 to 500 feet or higher. One really needs to bring the earth below up closer with longer focal lengths.



A shot like this will fool an auto setting on your camera; use manual and bracket.

For the rest of the trip, most of my aerials were taken with the 55mm macro focused close to infinity. The motor drive was invaluable, enabling me to make several consecutive exposures as we flew over a canyon or past a mountain peak, bracketing f/stops at f/5.6 and f/8.

Why didn't I set the camera on automatic exposure? Because I wasn't just shooting the earth below. I incorporated part of the airplane's wing and portions of the windshield frame in my compositions. When taking my turn in the back seat, I included the entire circular window as a frame for mountains, and introduced my turquoise jacket and hat as colorful, soft focus foreground props. All of these darker elements would throw off an automatic meter and overexpose the landscape.

I would aim my center-weighted metering system down on the earth below, or across to mountains, in order to get a manual reading. Then I composed the shot and bracketed quickly as the motor drive advanced the film.

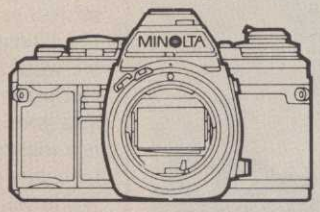
The motor drive was also invaluable at end-of-roll time when it automatically rewound the film. This made the process of changing film much smoother and quicker and was less likely to cause tummy turbulence than the endless fiddling required by manual rewinding.

I kept my eyes on the horizon as much as posible to maintain equilibrium, changing film and lenses by feel, without watching the process too much. (One must be very familiar with one's equipment to pull this off without a hitch!)

Although the American Southwest is spectacular to the naked eye from both land and air, it is, nevertheless, tricky to photograph. Light and shadow are very important to lend form and contrast to the predominantly brown landscape. Especially from the air, I found only those shots which captured the most dramatic topographical phenomena translated on film. My inclusion of parts of the plane was done deliberately to augment compositional structure in my photographs. And, to more lucidly illustrate being in a plane.

A COLUMN ON TRAVEL PHOTOGRAPHY BY LISL DENNIS

Great reasons for buying a Minolta SLR.



The hottest thing in lenses for 35mm SLR cameras is "zooms." And the leader is Minolta, with a total of 13, from a 24-to-50mm all the way to a fantastic new 100-to-500mm APO.

Like all Minolta lenses, they combine ultra-sophisticated computer design, our own superlative rare-earth optical glass, meticulous manufacturing techniques and the highest level of quality control.

And they feature the exclusive Minolta Achromatic coating process that minimizes flare and gives you not only more life-like color images, but consistent color balance from lens to lens.

In addition, aperture and focus rings turn the same way on all Minolta lenses, for great speed and convenience in use. And our entire range of zoom lenses is designed to fit *only* the mounts on Minolta's SLRs. So there's no compromise in mount design that could lead to mismatching problems.

The 13 compact, lightweight Minolta zooms are part of a comprehensive Minolta system of more than 50 laser-sharp lenses. Each one backed by Minolta's 5-year U.S.A. limited warranty.

You couldn't ask for better reasons for looking into, and buying, a Minolta SLR.

For more information, see your Minolta dealer, or write for our free deluxe lens booklet. Minolta Corp., Dept. ZL-1, 101 Williams Drive, Ramsey, N.J. 07446. In Canada: Minolta Canada, Inc., Mississauga, Ontario, Canada L4W 1A4.

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ZOOMS

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As for reflections from the plane window, I didn't use a polarizing filter as it would reduce exposure by two stops. Anyway, most of my shots were reflection free, and the few that did have reflections were usually enhanced by the abstraction.

Each day, we would fly in the mornings and explore *terra firma* in the afternoons. In the late afternoon, we would drive to meet Anna at the campsite for hearty meals, coziness and good campfire conversation. Anna is a master at finding the most picturesque campsites in Mesa Verde National Park, Arches National Park, and along the banks of the San Juan River.

If You Go . . . American Airlines flies to Albuquerque, an hour from Santa Fe. For overnight in Santa Fe, consider La Posada and La Fonda, two historic Southwest lodgings. For a brochure, contact Southwest Safaris, P.O. Box 945, Santa Fe, NM 87501 (505-988-5246).

The last night, we pulled into a unspeakably beautiful, secret spot overlooking Monument Valley. At this little known lookout, we were the only campers, watching the purple, mauve, pink evening fade into a navy blue starry night. The mesas and buttes of Monument Valley were like a space odyssey set at Paramount Studios.

As the group sat around the fire, we shared comments on the time machine experience of the previous days. Other than by plane, how better could one witness a topographical spectacle which began four billion years ago? How else could one glide over the desert flats of the Navajo Nation, bank around Lake Powell, meander below the rim of the Grand Canyon, soar over the furry peaks of the Rockies — all in a relatively few hours of flying time. It takes days to cover the same distances by car!

A very strange reaction took place upon reentering the everyday world. I felt as if I had come out of a spiritual retreat and into the world of inconsequential activities and aims. Having been so absorbed in the majesty and mystery of the plates of the earth, washing dinner plates seemed mundane. The awesome sense of having been for five days a microcosm in a macrocosm lingered awhile, eventually evaporating into everyday material preoccupations.

When my slides came back, I realized they were mere material symbols — and pale ones at that — of the transcendental experience that is Southwest Safaris. ■

"You need a carefully structured filter system to be creatively free."

Jean Coquin

Jean Coquin was determined to turn creative filter photography into fun for everyone. As a photographer, he was stifled by the creative limitations of screw-on filters. Appalled by the expense of buying duplicate filters for each lens.

Today, Jean Coquin is a much happier man. After years of experimentation, he came up with a brilliant photographic innovation: The Cokin Creative Filter System. A system that is compatible with virtually every 35mm SLR camera made, as well as medium format, movie and TV cameras, enlargers and almost all the lenses that go with them.

At last, a simple way to create stunning, one-of-a-kind photographs.

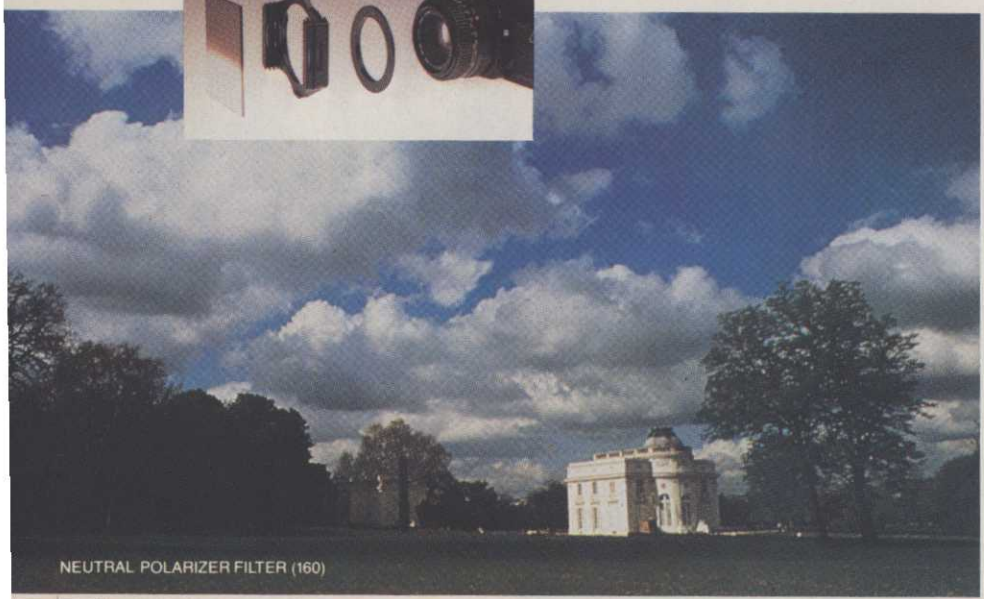
The Cokin Creative Filter System is so easy to use—even a beginner can do it. At the heart of the System is a unique filter holder that simply attaches, with an adapter ring, to any type of lens. Each filter holder holds one, two or three Cokin filters. You create dazzling effects effortlessly by slipping filters in and out. Cleverly, the filter holder rotates a full 360°. So you can pinpoint the placement of your creative effect.

Rainbows. Pastels, prisms and stars. Multiple-image filters, fog filters, diffusers—there are over 200 filters in the Cokin family. And more are coming.

The system travels anywhere you do.

Made of high-quality optical organic resins and minerals, Cokin filters are lightweight and portable. Durable, too.

Whether you're a pro, dedicated hobbyist, or newcomer, The Cokin Creative Filter System was made for you. It's the original. Designed by a professional photographer who cares so much about creative photography—he invented a way to make it easier.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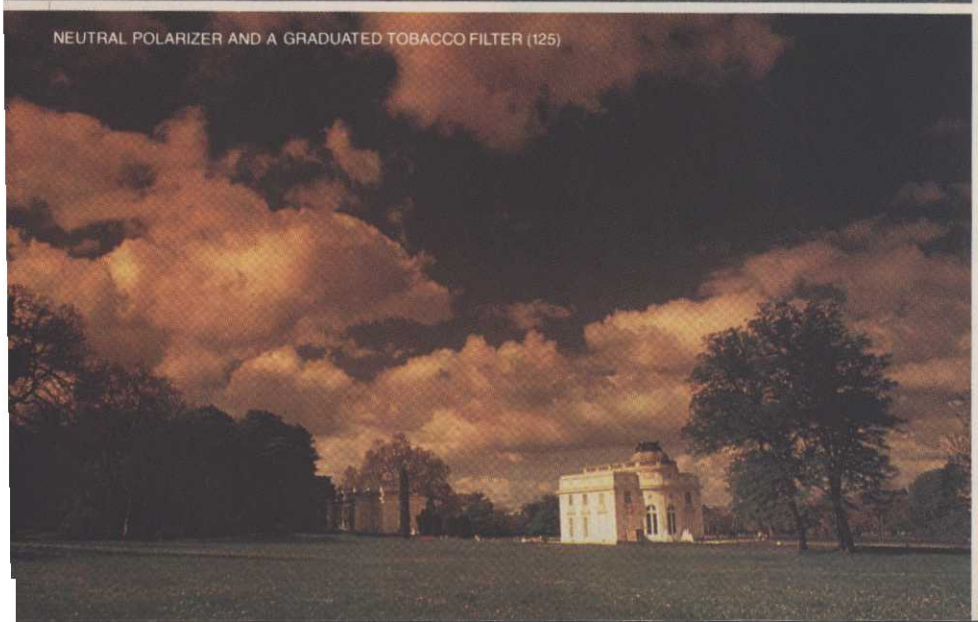
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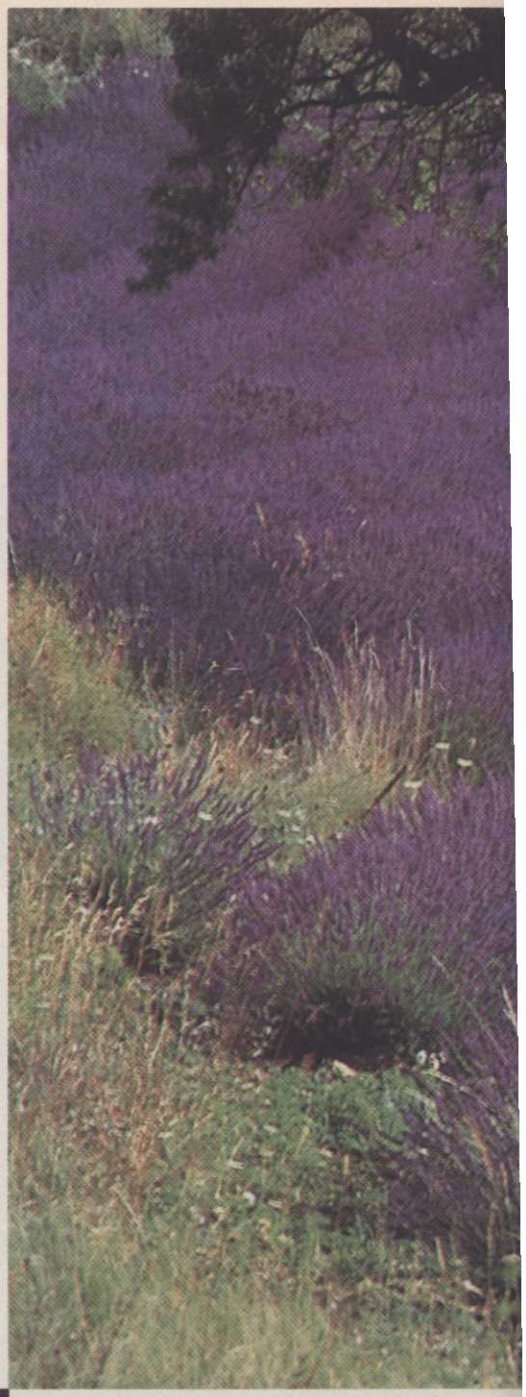

Photographing lavender in Southern France for a project on perfumes, I waited until the sun's rays were low, washing the field in warm light. Bracketing, this photo is slightly overexposed from the meter reading.

Wildflowers in the desert near Jerusalem, isolated and set against a shaded background, shot with a +1 diopter on a 200mm lens for a soft close-up.

Photographs by Allen Rokach

COLOR CODES

By Anne Millman and Allen Rokach

It is no wonder that advertisers and packagers spend huge sums on psychological color research before deciding on the wrapping for a product. Sophisticated business people know that colors convey subliminal messages that affect us deeply.

In studies of young children, psychologists found that yellow was associated with happy stories and brown with sad ones. Hospital rooms for the emotionally disturbed are often blue because this color was found to have a calming effect. Even our language reflects the power and symbolism of colors: We "see red" when we're angry;

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The Official 35mm Camera of the 1984 Olympic Games

Go for the Gold,™ Official 35mm Camera of the

Perhaps more so than all other human endeavors, the energy and enthusiasm of Olympic competition produces an extra dimension of excitement for athlete and spectator alike. Every Olympian is already a champion, but their former successes only heighten their desire to win it all. To go for the gold.

As the Official 35mm Camera of the 1984 Olympic Games, we know that the only people who will be called upon to perform as consistently as the athletes, with equal precision and dedication to excellence—day in and day out at the peak of their performance—are the professional sports photographers whose job it is to capture the spirit of the games on film. They, too, are judged by their performance at the finish line. And they often only get one shot.

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Complete contest rules and an official entry form are available at your authorized Canon dealer or by writing to:

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Requests must be received by May 1st, 1984. Limit: one request per envelope. Open to U.S. residents, 16 years of age or older. Void in Vermont and where prohibited by law. Contest closes May 31st, 1984.

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THE CITY

Light/Shadow

I think my photography comes from my being an enthusiastic observer. Images that work for me involve an emotional connection to an aspect of human nature, the drama of a landscape, the majesty of machinery or simply the quality of light. I prefer the times around sunrise and sunset, when the shadows are long and the light warm, when a subject can sometimes appear to be under a spotlight.

I like to talk to the people I photograph, to find out something about their lives and to ask permission to take the shot. I also research an area before going: I'll read books, talk to people, find out about customs, geography, geology, history. But the really important part is *being* there and feeling a sensitivity to the place that enables me to make my own interpretation of it. These are photographs of the way I see life.

—Paul Aresu

Paul Aresu is a commercial photographer working in still life, fashion and industrial/corporate work. He also travels extensively on assignment and as a freelancer.

TIME & TEMP

Mini Darkrooms

A COLUMN ON HOME DARKROOM BY GARY MILLER

Several times over the years we've written about darkroom design and construction. Most of what has appeared on these pages resulted from first-hand experience. We've designed, built and worked out of numerous darkrooms of our own as well as friends'. They've ranged from tiny portable systems that fit in a suitcase and can be set up in a hotel room to 20x30-foot, air-conditioned, stereo-fed stainless steel and formica "maxilabs" that make darkroom work not only enjoyable but downright inviting.

Recently we moved from a rambling house to a somewhat less-than-spacious apartment (not at all unusual these days, we might add), and in doing so said goodbye to our beloved darkroom which included, among other things, a 4x8-foot work table. Designing and equipping a darkroom for the new apartment was a pleasant challenge and, predictably, results in another column. We hope our experience will help you in similar situations.

The first step is to analyze available space in terms of temperature, dust, light, water, space, electricity and ease (or lack of it!) of conversion. In our case, possibilities included a basement (dusty, dirty and a four-story hike downstairs), an attic workroom (unheated, somewhat dusty, no water, already overcrowded), a sunporch (too many windows, no heat, electricity or water, too cramped), a reasonably spacious kitchen and a good-sized bath complete with Victorian claw-footed tub, plus lots of nooks, crannies and storage cabinets. After mulling it over for a while, and walking from site to site imagining what it would be like to work there, we settled on the bath.

The above mentioned parameters may or may not be critical to you. However, they definitely merit some thought. A dusty environment, for example, might be brushed aside (no pun intended) with rationalizations like "I'll use plenty of Dust-Off" or "I can always dry the negatives somewhere else." After you go bananas spotting prints and re-washing negatives you may wish you had selected a cleaner site. Although a large percentage of darkroom work can be accomplished without water (especially since resin-coated paper has drastically reduced washing time), lugging in clean water in pitchers and lugging out dirty utensils for cleaning may, after some time, prove to be less than ideal. Electricity is mandatory (but can be easily "piped in"), as is darkness.

Actually, darkness is not as critical as the other requirements. A changing bag provides total darkness for loading film onto reels, for example, while drapes or strategically hung towels will usually provide sufficient darkness at night for black and white printing. Light-tight blackout shades are the best for printing during the day, and you can easily make up your own: Thin plywood that fits snugly inside the window frame, trimmed with weatherstripping, is one solution. Another is light-tight fabric (oilcloth, two layers of black velour, whatever) edged with Velcro. Attach matching strips of Velcro to the window frame and — presto! — instant darkness.

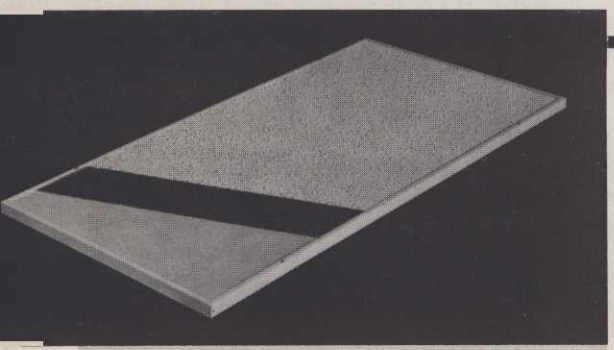
Heat, either too much or not enough, can be quite a serious problem. Besides being uncomfortable, it makes maintaining accurate and constant temperatures difficult. Remember, even for black and white we should keep each solution within a few degrees of one another. Small changes in ambient temperature can be minimized by keeping everything in a water bath at the correct temperature.

A new product which looks promising in this department is the "Energy-Kote" radiant heating panel from the TVI Energy Corporation. Available from 2x2-foot to 4x8-foot sizes, they look like thick ceiling panels (one-inch thick and weighing three-quarters of a pound per square foot). The infrared heating principle (it heats the objects, not the air) has a few distinct advantages for darkrooms: no moving air, no light, no dust, no noise. These panels can easily be dropped into existing ceiling systems, such as the widely-used "T"-bar system. (Contact your heating and plumbing dealer or write TVI Energy, 5012 Herzel Place, Beltsville, MD 20705.)

In terms of space, the first step is to outline your darkroom goals. If you want to make 16x20 "C" prints you'll need a lot more space than the photographer content with 8x10s or an infrequent 11x14. Since we have access to other labs for the occasional oversize print, we selected 8x10 and 11x14 as the two common size prints. This means three 11x14 trays, preferably side-by-side, and a wash tray near the water supply. If everything else is "perfect" in your setup but you don't have enough room for three side-by-side trays, your dealer can supply you with a stackable tray system or stand which stacks your trays on top of each other. Each tray is set back from the one beneath it, providing easy access.

Our goals looked like this:

- Black and white processing of 35mm and 120 film. Most common load, four rolls 35mm (2/120).
- Printing both black and white and color, most common size 8x10, sometimes 11x14 (black and white only). Color processes: Ektaflex and Cibachrome.
- Enough wet space for mixing, using, and evaluating new products for *Lens* (various black and white and color chemistries, emulsions, etc.).
- Minimum set-up and take-down time; space must not look like darkroom when not in use. Ease of cleaning, etc.



Heat's on: Cutaway view of an "Energy-Kote" heating panel.

With all this in mind, we set out to make the bath into a "convertible" darkroom. It has a good sized vanity which would comfortably hold our favorite enlarger, the Beseler 23C with color head. A power strip with built-in circuit breaker was used to supply electricity for the enlarger, digital timer, safelight and print inspection light. So far, so good.

The "wet" side would obviously be the tub. Readers who have used bathrooms for darkrooms well know the discomfort in stooping over the tub in order to process prints. Some kind of duckboard was necessary, preferably one which provided access to the tub for print and film washing. We've constructed numerous duckboards over the years, but the technique has always been the same: laboriously fastening, with expensive brass screws, 1x2s about three-quarters of an inch apart, then protecting it with about three coats of spar varnish. Elegant and functional. However, in setting up the rest of the apartment we ran across a book (*The Moveable Nest* by Tom Schneider, Dell Publishing) which provided a lot of good ideas. In modifying one of his ideas one day, we used a large fluorescent light fixture grid against the kitchen wall to hang pots and pans and such. When the need for a duckboard came up, so did the idea of the light grid. These are plastic, commonly available in hardware and do-it-yourself stores for about seven dollars. Since it is slightly flexible, we needed some way to stiffen it. This was done simply with a 2x3-inch frame. The duckboard is hinged against the wall and swings out of the way when not in use (the shower curtain even covers it so nothing is visible in the "bath" mode.) When in use, it's held up by brass chains (the kind sold for plant hangers). The 2x4-foot size easily accommodates three 11x14 trays; the washer goes below in the tub.

Concentrates, such as Edwal's Ultra-Black for print developing, are ideal for the small space darkroom.

The safelight and print viewing light are mounted on simple wire grips (available from your dealer's photoflood department) which we attach to the shower curtain rod. All electrical cabling has been tied neatly together with plastic cable ties (available from outlets such as Radio Shack) for neatness. The enlarger is stored close by in a stairwell and the associated electric wiring is stored with it. After setting the enlarger on the vanity, merely plug in the power strip, unfold the wiring cables, clip on the lights and you're ready to go!

Although we presently use cloth for blacking out the window, we plan to change to plywood soon due to one criteria we originally overlooked: ventilation. Although modern bathrooms usually have exhaust fans, ours doesn't, and after working a while the chemical odors can be annoying. So our window will soon receive the plywood insert treament, with a small exhaust fan mounted at the bottom for removing infamous hypo odors.

If your bathroom lacks enough storage space for the assorted "extras," you might think about some kind of rolling storage cart which can be wheeled in for printing or processing sessions. Thanks to a few new and interesting products, however, we discovered more than enough storage space for trays, tanks and chemistry.

One of the best ideas for the "mini" darkroom is Kodak's "Hobby Pac." Available for both black and white and color, these are packaged liquids in foil pouches. Each pouch holds enough liquid for processing a few rolls of film or making about 15 8x10 prints — perfect for an evening's work in a darkroom conversion such as ours.

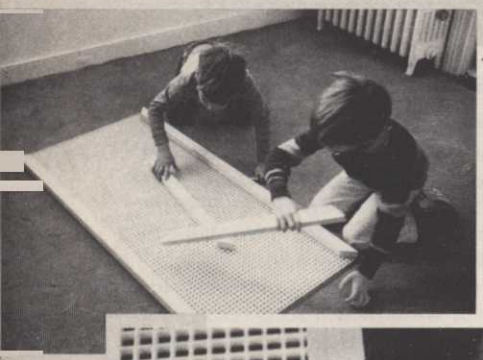
Other companies have also come up with liquid concentrates for one-shot use. One is Ilford: We use their Multigrade Print Developer and Quick Fix. Both are highly concentrated and the fix is especially useful in that time is 30 seconds! Neat. Falcon recently introduced Edwal Ultra-Black in a new air-tight Barex bottle. This developer, which produces really rich blacks, will process more than 1000 8x10s from a one-quart bottle! The new air-tight bottle provides a shelf life of five years. Who says manufacturers are ignoring the black and white worker?

One of the keys to this type of darkroom is simplicity. Stocking a wide variety of paper and chemistry makes for storage as well as working problems. One film developer, one paper and one line of paper chemistry makes things much easier in the long run. ■

LENS Darkroom Guide

A Darkroom Project

We make a darkroom duckboard from a fluorescent light grid. It's so easy a child—or three children—can do it!



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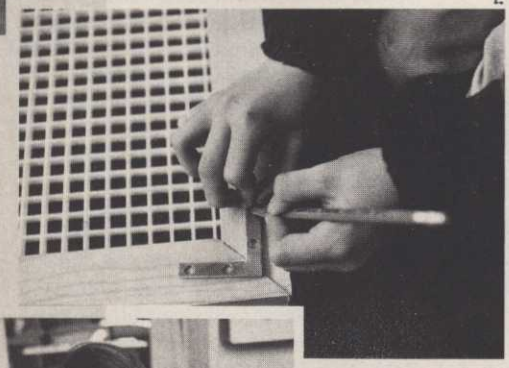

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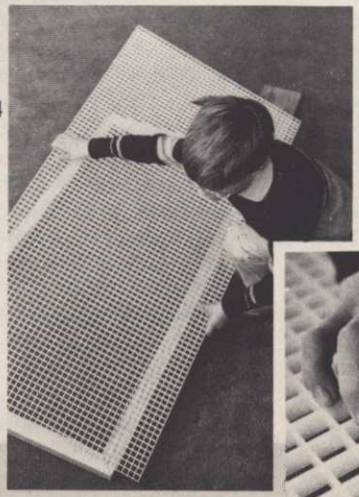

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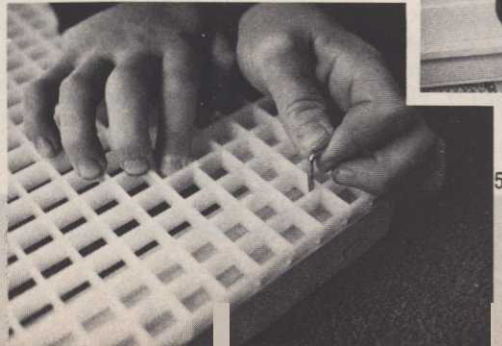

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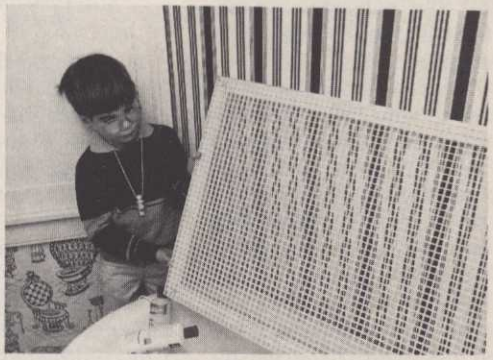

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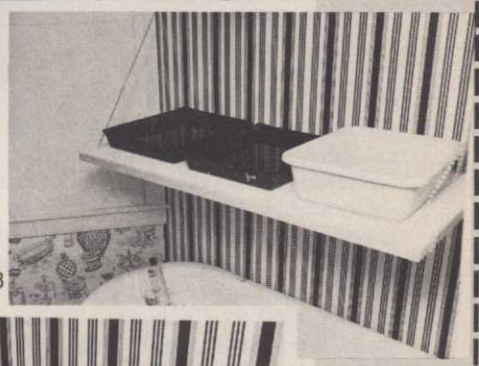

8

9

1. Nathaniel and Zack check to make sure the mitered 2x3s are the correct length. They are placing them along the perimeter of the light grid.

2. Nathaniel marks off the "L" brackets which hold the frame together.

3. Here he screws the brackets into the 2x3s. For added rigidity, glue the pieces before assembling them.

4. The grid can now be placed on top of the frame and . . .

5. . . . fastened to it by means of brass "L" hooks (with the collars removed by wiggling them free with a pair of pliers).

6. Fasten the brass hinges to the wall.

7. As Nathaniel demonstrates here, the finished duckboard swings down (out of sight behind the shower curtain) when not in use, and up, where it is held by brass chains, for use.

8. Here is the finished duckboard with three 11x14-inch trays in place (the tray on the right is an extra-deep fix tray). Notice that there's plenty of room to get prints in and out of the tub (where the print washer is placed).

9. Evan puts the first negative into the enlarger. A circuit breaker-protected power strip (right) provides electricity for the timer, safelight, print viewing light and enlarger.

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ON TAPE

Home Care

Warning: If you are about to use a videotape head cleaner or other maintenance product on your video cassette recorder — *stop immediately! Read this first!!*

I hope I've got your attention. If not, you may damage one of the most expensive electronic items you may ever own — your VCR. And if you think I'm exaggerating, pay a visit to a video repair shop and ask the manager for a look at the graveyard of machines "serviced" by their owners. Contrary to popular belief, VCRs aren't just video versions of audio recording decks; the same cleaning and preventive maintenance techniques for audio recorders can't be applied to VCRs.

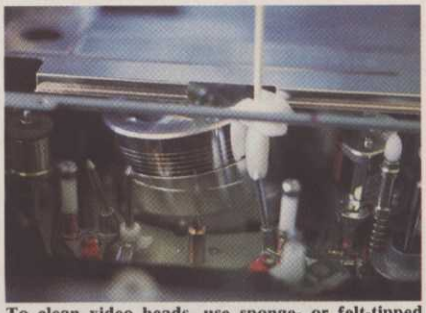
This isn't to say that you can't or shouldn't do your own preventive maintenance. You'll need the right tools, supplies and know-how. The tools and supplies you can get from your dealer; the know-how is coming up in this column.

What problems might you encounter? The most frequent video demon that besets VCR owners is a snowy picture, which can be caused by a bad tape, a dirty machine, a broken cable or a mistuned TV set. Poor, raspy audio, a jittery or "bent" picture and a weak, washed-out image are other common ills.

But before you tear your VCR apart and zealously clean and lubricate everything in sight, memorize this important home VCR service rule: Looketh ye *outside* before you attack the devils that dwell within. In less cryptic terms, before you go into the innards, be sure the problem isn't in the videotape, the television set or the cables that connect your units.

To test any tape, just run another that you know to be good, and adjust the tracking control on the VCR for the cleanest picture (do this with every tape that looks soiled around the edges). A professionally-recorded movie is a good candidate. If it runs without a problem, then the error probably lies somewhere in the tape, not the deck. Diagnosing videotape faults isn't easy; you'll find the process more palatable if you run the suspected tape on another machine to verify its sickness.

Tapes *do* get old (after about 200 viewings), and deteriorate with age or mishandling. The classic symptoms of a dying or dead tape are streaks of white flecks that flash across the screen, a jittery or otherwise unstable picture and poor sound. If you try other tapes that *don't* look this way, you can be fairly certain that the machine is not at fault. Tapes can't be rejuvinated, incidentally, and playing old tapes can be bad for the VCR. Best chuck the tape when it gets too awful to watch.



To clean video heads, use sponge- or felt-tipped stick and follow cleaning kit instructions.

If the tape checks out, perhaps the cables that feed in and out of the VCR are damaged or loose. Unplug each cable and examine it closely. If it's the round 75-ohm type, the connector should be on tightly and the thick center wire should not be bent or broken. With flat 300-ohm cables, the wires should look bright and clean, and the two conductors should not touch eath other. While the cables are off, look at the mating connectors on your equipment. Be on the lookout for signs of corrosion or damage (both unlikely). Reconnect the cables and try again.

The television set is the last item to check before tearing into the VCR itself. With most setups, the TV is connected to the VCR via an RF circuit, so the signal received from the recorder is picked up through the TV's standard tuning section. The majority of VCRs "transmit" their signals on standard channel 3 or 4; however, the exact frequency of transmission isn't precise. So if you have your TV tuned in to regular channel 3 (as received through your antenna), you may get less than acceptable pictures from your VCR. The solution? Simply fine tune the TV until the picture comes in clear.

Other controls that should concern you include the vertical hold, horizontal hold, brightness and contrast. In all cases, your best bet for diagnosing VCR ills is to tune the TV to any local channel and tweak the controls until the picture is just the way you like it. The images from the VCR should have the right contrast and brightness, and lack jitter.

Keep in mind, however, that a rolling picture with a pre-recorded tape may indicate that copy protection has been added to that tape. To correct, readjust the vertical hold or add a device known as a video stabilizer to your system (see the *On Tape* column in the Nov/Dec 1983 issue for more information on stabilizers and other video "black box" accessories).

If the tape, cables and TV check out, your VCR may indeed be sick. Several alternatives are open to you. If the problem is *not* one of poor audio or video and is a mechanical malaise, you should take it to an authorized repair shop. You could consider fixing it yourself if you have the proper tools and a good mechanical apptitude, but it isn't suggested.

On the other hand, if you're plagued with such problems as fluttery sound or a snowy picture, odds are that the

A COLUMN ON HOME VIDEO BY GORDON MCCOMB

PHOTO ASSIGNMENT NO. 2

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Aperture Range: f4.5-f22, Angle of View: 30-12°, Const.: 12 elements in 9 groups, Max. Macro Ratio: 1:4, Dia.: 2.4 in., Length: 4.8 in., Wgt.: 16.9 oz., Filter Size: 55mm, Multi-Coated.

Note: An electronic flash will be required to produce this photograph at home. We used the Soligor MK 32A.

machine requires a good cleaning which you can do yourself, and you'll save quite a bit of money in the process (the typical cleaning/check-up bill for VCR service is at least fifty dollars).

VCRs use magnetic heads to record and pick up signals on a coated tape, the same as an audio recorder. The oxide coating, as well as oils, dust and other foreign materials, can collect on the heads. VCRs have several sets of heads: A couple of small ones are mounted inside a highly polished drum — these reproduce the picture itself. Some machines have only two such heads, others have up to five. The heads are mounted on a bar inside the drum, and the bar spins at high speed when recording and playing back a tape.

Another head is used to record the audio track. In stereo VCRs, it records two discrete tracks of audio onto the tape. Yet another head is used for recording and playing back what is known as a control track. The signals from the control track are used by the VCR to enable it to play the tape back at the correct speed and with the correct timing. Lastly, an erase head is used to delete old information on the tape before the video, audio and control track heads tape anything new onto it.

As with an audio deck, dirty heads in a VCR can mean lessened performance, so it's important to keep them as clean as possible. The easiest and safest way to clean VCR heads is to use one of the many commercial videotape cleaning cassettes now available. Shaped just like standard cassettes in the Beta and VHS formats, these tapes have cleaning materials built inside them.

Cleaning cassettes are available in two distinct types: abrasive and wet. Abrasive cleaners are the most effective and can rid even a badly polluted VCR of built-up oxide and gook. But abrasive tapes work with a lapping action, and can easily wear down the highly polished surface of the heads. Abrasive cleaners don't pose a great threat to the audio, erase and control track heads, but they can spell real trouble for the video heads, which are tiny pinpoints of metal, extremely fragile and manufactured with very close tolerances. Overuse of any type of abrasive cleaner can drastically cut the life of a video head — by half or more! Once the head is worn out (a weak, washed-out picture is the result), it must be replaced: a $200 to $300 proposition. (With the price of VCRs these days, it's almost cheaper to buy a new machine.)

The wet cassettes use a chamois or cloth tape and do their work with a cleaning agent, typically an alcohol/Freon mix. The cassettes are either pre-wetted or come with a bottle of cleaning solution that you apply to the tape before use. Wet cleaners are the preferred method because they can be used more or less regularly without the threat of head damage, but they don't often clean as well or as completely as the abrasive types. After using a wet cleaner, allow the inside of the machine to dry completely before inserting a videocassette — usually four to six minutes.

Not all cleaning cassettes touch each head or pass over the complete tape path. The Allsop VHS cleaner, for example, cleans the erase and video heads but misses the other parts. The video heads are the main concern of course, but for a complete job, everything in the tape path should be cleaned.

How often you clean your VCR really depends on how much you use it.

The alternative to using a cleaning cassette is to take the cover off the VCR and apply cleaning solution to each head and metallic tape-path part manually with a sponge-tipped swab. This is how the pros and seasoned videophiles do it and it is the most complete method around. But taking the lid off your VCR may void its warranty and special care must be exercised when poking around the delicate insides of a video cassette recorder.

Cleaning kits are widely available, usually for around twenty dollars. Included in the kit are half a dozen or so "cleaning wands" — wooden sticks with either high quality sponges or chamois pads attached to them (cotton-tipped swabs are *not* used because the cotton fibres can dislodge in the machine and be caught up in its rapidly moving parts).

Also included in the kit is a small bottle of cleaning fluid, usually a mixture of isopropyl alcohol and Freon solvent. The cleaner is volatile; that is, its active ingredients dissipate rapidly when exposed to air. So when using the cleaner, replace the cap back on the bottle as soon as you wet the tip of the stick.

Detailed instructions come included with the kit, but one special precaution must always be followed: The video heads are very delicate. When cleaning them, use a *gentle side-to-side* motion. Very little pressure is needed; instead, let the cleaning solution do all the work.

Like a wet cassette cleaner, applying cleaning solution with a swab leaves the metal parts of the VCR wet. Allow the cleaner to dissipate completely; don't try to run a tape for at least five minutes.

Dust and large particles of oxide or tape should be blown out of the insides of the VCR. A standard can of compressed air — the same used for photographic equipment — is more than suitable for a video recorder. Be sure to aim the air nozzle so that the foreign matter will be blown out of the way of the mechanics of the machine. A clean anti-static brush is suitable for caked-on dust.

The audio, control and erase heads can be demagnetized with a standard audio deck demagnetizing wand: Follow the directions with the demagnetizer for best results. *Don't* use the wand on the video heads, however. Most audio demagnetizers put out too strong a current for video heads to bear, and you run the risk of cracking them. Video heads need demagnetizing only occasionally and should be done by a service shop. If you absolutely must do it yourself, find a demagnetizing tool specially made for video heads.

How often should you clean your VCR? That depends on how much and where it's used. On the average, the heads in a VCR should be cleaned every 80 to 100 hours of use, which equates to about every four to six months (assuming you run tapes with it less than eight hours a week). If you use the machine more, or in dusty or dirty environments (as with a portable), the VCR should be cleaned every one to three months. Of course, watch the picture quality closely. When you see that it is becoming washed out and streaked, an earlier cleaning may be required. Don't wait until the heads are completely "clogged"; you'll run the risk of ruining an important recording session.

While the home remedies above are fine for regular cleaning and upkeep, what about periodical lubrication and adjustment? Because of the complexity of a video cassette recorder, you shouldn't do more than what I've outlined here. It's a wise idea to return the deck for service every 12 to 18 months for a complete physical. While it's there, the technician can lubricate everything that needs it, clean the parts that you couldn't reach, and generally tweak the machine back into smooth running order. The bill for all this will be about $50 to $100, but it's well worth it. And you'll be surprised how much longer your VCR will last. ■

5·6

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